SANTA CRUZ BIOTECHNOLOGY, INC.

NPAS3 siRNA (h): sc-61223

BACKGROUND

The Per-Arnt-Sim (PAS) domain is a 270 amino acid motif that mediates associations among various PAS family transcription factors. The PAS family contains neuronal specific transcription factors known as NPAS1, NPAS2 and NPAS3, which are involved the development and maintenance of learning and memory pathways. NPAS1 regulates erythropoietin expression in developing brain. NPAS2, also designated PAS 4/MOP4, associates with MOP3 to activate transcription. NPAS3, which localizes to the nucleus and is ubiquitously expressed in the adult brain, may be involved in neurogenesis and may control regulatory pathways relevant to psychotic illness and to schizophrenia. It regulates tracheal cell fates in the embryo and is necessary for the development of the posterior spiracles and the salivary gland duct. NPAS3 contains one basic helix-loop-helix (bHLH) domain, one PAC (PAS-associated C-terminal) domain, and two PAS (PER-ARNT-SIM) domains. Efficient DNA binding by NPAS2 requires dimerization with another bHLH protein.

REFERENCES

1. Brunskill, E.W., et al. 2000. Characterization of NPAS3, a novel basic helix-loop-helix PAS gene expressed in the developing mouse nervous system. Mech. Dev. 88: 237-241.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609430. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Kamnasaran, D., et al. 2003. Disruption of the neuronal PAS3 gene in a family affected with schizophrenia. J. Med. Genet. 40: 325-332.
4. Pieper, A.A., et al. 2005. The neuronal PAS domain protein 3 transcription factor controls FGF-mediated adult hippocampal neurogenesis in mice. Proc. Natl. Acad. Sci. USA 102: 14052-14057.
5. Brunskill, E.W., et al. 2005. Abnormal neurodevelopment, neurosignaling and behaviour in NPAS3-deficient mice. Eur. J. Neurosci. 22: 1265-1276.
6. Kamnasaran, D., et al. 2005. Defining a holoprosencephaly locus on human chromosome 14q13 and characterization of potential candidate genes. Genomics 85: 608-621.

CHROMOSOMAL LOCATION

Genetic locus: NPAS3 (human) mapping to 14q13.1.

PRODUCT

NPAS3 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see NPAS3 shRNA Plasmid (h): sc-61223-SH and NPAS3 shRNA (h) Lentiviral Particles: sc-61223-V as alternate gene silencing products.

For independent verification of NPAS3 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-61223A, sc-61223B and sc-61223C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

NPAS3 siRNA (h) is recommended for the inhibition of NPAS3 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NPAS3 gene expression knockdown using RT-PCR Primer: NPAS3 (h)-PR: sc-61223-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.